I CLAIM:

1. An apparatus for uniformly illuminating molecular samples with ultraviolet radiation comprising:

(a) a housing including an internal chamber and a sample supporting platform having a sample supporting area;

(b) radiation means disposed within said chamber for uniformly irradiating said sample supporting area with ultraviolet light at a first wavelength, said radiation means comprising a grid for emitting ultraviolet radiation constructed from a serpentine shaped ultraviolet light producing tube; and

(c) a first conversion means removably carried by said housing at a location intermediate said radiation means and said sample supporting platform for converting the radiation emitted from said source of ultraviolet radiation to radiation at a second wavelength.

2. The apparatus as defined in claim 1 in which said serpentine shaped ultraviolet tube comprises a continuous tube that is strategically formed to provide a multiplicity of side-by-side, immediately adjacent irradiating segments.

3. The apparatus as defined in claim 1 in which said radiation means further comprises dispersion means superimposed over said grid for controllably disbursing the ultraviolet radiation emitted from said grid.

4. The apparatus as defined in claim 1 in which said radiation means source of ultraviolet radiation emits radiation at a wave length of about 254 nanometers and in which said first conversion means converts the radiation to approximately 365 nanometers.

5. An apparatus as defined in claim 1 in which said source of ultraviolet radiation emits radiation at a wave length of about 254 nanometers and in which said first conversion means converts the radiation to approximately 300 nanometers.

6. An apparatus as defined in claim 1 in which said first conversion means comprises a conversion plate having a phosphor coating.

7. An apparatus as defined in claim 1 further including a second conversion means removably carried by said housing at a location intermediate said first conversion means and said sample supporting platform for converting the radiation emitted from said radiation means to radiation at a third wavelength.

8. An apparatus as defined in claim 7 in which said radiation means emits radiation at a wave length of about 254 nanometers, in which said first conversion means converts the radiation to approximately 300 nanometers and in

which said second conversion means converts the radiation to approximately 365 nanometers.

9. An apparatus for uniformly illuminating molecular samples with ultraviolet radiation comprising:

(a) a housing having interconnected top bottom and side walls defining an internal chamber and a sample supporting platform having a sample supporting area;

(b) radiation means disposed within said chamber for uniformly irradiating said sample supporting area with ultraviolet light at a first wavelength, said radiation means comprising a grid for emitting ultraviolet radiation constructed from a continuous, serpentine shaped ultraviolet tube that is strategically formed to provide a multiplicity of side-by-side, immediately adjacent irradiating segments; and

(c) a first conversion means removably carried by said housing at a location intermediate said radiation means and said sample supporting platform for converting the radiation emitted from said source of ultraviolet radiation to radiation at a second wavelength.

10. The apparatus as defined in claim 9 in which said radiation means further comprises dispersion means superimposed over said grid for controllably

disbursing the ultraviolet radiation emitted from said grid, said dispersion means comprising a quartz fibrous mesh.

11. The apparatus as defined in claim 9 in which said radiation means source of ultraviolet radiation emits radiation at a wave length of about 254 nanometers and in which said first conversion means converts the radiation to approximately 365 nanometers.

12. The apparatus as defined in claim 9 in which said source of ultraviolet radiation emits radiation at a wave length of about 254 nanometers and in which said first conversion means converts the radiation to approximately 300 nanometers.

13. The apparatus as defined in claim 9 in which said first conversion means comprises a conversion plate having a phosphor coating.

14. The apparatus as defined in claim 9 in which a plurality segments are coated with phosphor.

15. The apparatus as defined in claim 9 further including a reflector disposed within said housing between said bottom wall and said radiation means.

16. The apparatus as defined in claim 9 further including a phosphor coated borosilicate plate disposed between said bottom wall and said radiation means.

17. The apparatus as defined in claim 9 further including a second conversion means carried by said housing at a location intermediate said first conversion means and said sample supporting platform for converting the radiation emitted from said radiation means to radiation at a third wavelength.

18. The apparatus as defined in claim 17 in which said radiation means emits radiation at a wave length of about 254 nanometers, in which said first conversion means converts the radiation to approximately 300 nanometers in which said second conversion means converts the radiation to approximately 365 nanometers.

19. A radiation source for substantially uniformly irradiating a spaced apart surface and radiation source comprising a grid for emitting ultraviolet radiation constructed from a continuous, serpentine shaped ultraviolet tube that is strategically formed to provide a multiplicity of side-by side, immediately adjacent irradiating segments.

20. The radiation source as defined in claim 19 in which a plurality of said adjacent irradiating segments are at least partially coated with phosphor.

21. The radiation source as defined in claim 19 in further including dispersion means superimposed over said grid for controllably dispersing the ultraviolet radiation emitted from said grid.

22. A method of uniformly illuminating molecular samples with ultraviolet radiation using an apparatus comprising a housing having a floor, an internal chamber and a sample supporting platform; radiation means disposed within the chamber for directing radiation at a first wavelength in a direction toward the floor and toward the sample supporting platform; first conversion means carried by the housing at a location intermediate the radiation means and the sample supporting platform for converting the radiation emitted from the source of radiation to radiation at a second wavelength; second conversion means carried by the floor for converting the radiation emitted from the source of ultraviolet radiation to radiation at a second wavelength and a reflector disposed within the housing at a location below the radiation mean and above the floor; the method comprising the steps of:

(a) using the first conversion means, converting the radiation directed toward the sample supporting platform to a first converted radiation wavelength;

(b) using the second conversion means, converting the radiation directed toward the floor to a second converted radiation wavelength;

(c) using the reflector, reflecting said second converted radiation in a direction toward the first conversion means;

(d) adding said first converted radiation to said second converted radiation to produce a sample irradiating radiation; and

(e) irradiating the samples with said sample irradiating radiation.

23. The method as defined in claim 22 in which the first wavelength is approximately 254 nm and in which said first converted radiation is approximately 302 nm.

24. The method as defined in claim 22 in which the first wavelength is approximately 254 nm and in which said second converted radiation is approximately 302 nm.

25. The method as defined in claim 22 in which the first wavelength is approximately 254 nm and in which said second converted radiation is approximately 365 nm.